REMARKS

Reconsideration and allowance of the subject application are respectfully requested. By this Amendment, Applicant has added new claims 9-11. Thus, claims 1-11 are now pending in the application. In response to the Office Action (Paper No. 3), Applicant respectfully submits that the pending claims define patentable subject matter.

As a preliminary matter, Applicant thanks the Examiner indicating that claims 2, 5 and 6 are allowed and claims 7 and 8 would be allowable if rewritten independent form. However, Applicant respectfully requests the Examiner to hold in abeyance the rewriting of claims 7 and 8 until the Examiner has had the opportunity to reconsider the rejected parent claims in light of the arguments presented below in support of the Applicant's traverse of the rejection.

I. Rejection of claims 1, 3 and 4 under 35 U.S.C. § 112, second paragraph

The Examiner maintains that claims 1, 3 and 4 are indefinite because the claims recite a "groove portion" but do "not go into the structure or shape of the groove".

Although original claims 1, 3, and 4 broadly claim that "said lens surface and said filter surface, being opposed each other, has a groove portion", MPEP § 2173.04 clearly indicates that the fact that a claim is broad does not necessarily justify rejection on the grounds that the claim is vague, indefinite or incomplete. In non-chemical cases, a claim may be drawn as broadly as permitted by the prior art.

Further, the first sentence of the second paragraph of 35 U.S.C. § 112 requires only that claims "set out and circumscribe a particular area with a reasonable degree of precision and particularity." In the absence of evidence to the contrary, what the claim defines is what the

applicant regards as his invention. If those skilled in the art can tell whether any particular embodiment is within the scope of a claim, the claim fulfills its purpose as a definition. See In re Miller, 169 U.S.P.Q. 597 (CCPA 1971).

Lastly, although the claims recite functional language with regards to the claimed "groove portion", there is no support, either in the actual holdings of prior cases or in the statute, for the proposition that "functional" language, in and of itself, renders a claim improper.

Accordingly, Applicant respectfully submits that claims 1, 3 and 4 are entirely proper under 35 U.S.C. § 112, second paragraph, since the claimed "groove portion" is a structural limitation and those skilled in the art would have no trouble determining the metes and bounds of the invention from the claims.

Nonetheless, Applicant has amended original claims 1-6 to improve clarity.

II. Rejection of claims 1, 3 and 4 under 35 U.S.C. § 102(e) as being anticipated by Zheng

Applicant respectfully submits that the claimed invention would not have been anticipated by or rendered obvious in view of Zheng (U.S. Patent No. 6,282,339).

Zheng is directed to a wavelength division multiplexed (WDM) coupler. As shown in Figures 2A and 2B, the WDM coupler 100 includes a dual fiber pigtail 135, a first graded index (GRIN) lens 110, a WDM filter 105, a second GRIN lens 160 and a single pigtail fiber 175. The WDM coupler 100 is attached to the first GRIN lens 110 by a heat-curing epoxy 115 applied on peripheral areas of the first GRIN lens 110 and around the interface area between the WDM filter 105 and the first GRIN lens 110. The first heat-curing epoxy 115 has a high viscosity such it

will enter only the very outside interface areas between the WDM filter 105 and the first GRIN lens 110 to provide bonding between the WDM filter 105 and the first GRIN lens 110 but not the optical path between the WDM filter 105 and the GRIN lens 110. Further , Zheng teaches that in order to obtain strong bonding between the WDM filter 105 and the first GRIN lens 110, a certain amount of the heat-curing epoxy 115 is applied around the interface area between the WDM filter and the GRIN lens. See column 4, line 49 through column 5, line 19 of Zheng.

Amended claims 1, 3 and 4 recite "at least one of said lens surface and said filter surface, being opposed each other, including at least one groove portion in said portion apart from the optical path which enables the adhesive agent penetrated through the bonded surfaces to stay therein, said groove portion being formed in such a way that penetration of the adhesive agent into the optical path can be blocked."

With regards to the claimed "groove portion", the Examiner asserts that Zheng "would inherently include a 'groove' portion *in between* the lens [110] and the filter [105] surface for containing the adhesive agent" (emphasis added). That is, the Examiner appears to be taking the position that a gap may exist in between the WDM filter 105 and the first GRIN lens 110 when coupled by adhesive. However, Applicant submits that it is quite clear the neither the WDM filter 105 nor the first GRIN lens 110 of the Zheng coupler includes at least one groove portion in a portion apart from the optical path, as claimed. Further, Applicant respectfully submits there no

basis for asserting that either the WDM filter 105 or the first GRIN lens 110 inherently includes a groove portion, as claimed.[2]

III. New claims

By this Amendment, Applicant has added new claims 9-11 in order to further define the claimed invention. New claim 9 is directed to the third embodiment of the present invention (Figures 17-18) and recites that "at least one of said lens surface and said filter surface, being opposed each other, including a coating having a low wet property in an area around the optical path which blocks the adhesive agent from penetrating into the optical path." New claim 10 is directed the fourth embodiment of the present invention (Figures 19-22) and recites "a joining holder coupling the first lens and the optical filter so that an end surface of the first lens and an end surface of the optical filter are closely contacted with each other without adhesive between or surrounding the end surface of the first lens and the end surface of the optical filter." New claim 11 is directed to the fifth embodiment of the present invention and recites "a metallic film is formed on an outer peripheral surfaces of the first lens and the optical filter and the first lens and the optical filter are coupled by a solder provided on the metallic film."

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[2] "To establish inherency, the extrinsic evidence 'must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by person of ordinary skill. Inherency, however, may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient.'" *In re Robertson*, 169 F.3d 743, 745, 49 USPQ2d 1949, 1950-51 (Fed. Cir. 1999). Moreover, "[i]n relying upon the theory of inherency, the examiner must provide a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic necessarily flow from the teaching of the applied prior art." *Ex parte Levy*, 17 USPQ2d 1461, 1464 (Bd. Pat. App. & Inter. 1990).

Applicant respectfully submits that new claims 9-11 should be allowable over Zheng since the cited references do not teach or suggest the claim features discussed above.

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

IV. Conclusion

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,

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WASHINGTON OFFICE

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PATENT TRADEMARK OFFICE

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APPENDIX

VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE SPECIFICATION:

The specification is changed as follows:

Page 19, second full paragraph:

Fig. 17 and Fig. 18 show a rod lens [25] 24 and wavelength band-pass filter 40 used in the third embodiment of the optical multi/demultiplexer according to the present invention.

IN THE CLAIMS:

The claims are amended as follows:

1. (Amended) An optical filter module comprising:

an optical filter which selectively transmits, attenuates or reflects a light having a specific wavelength;

a first optical system which includes at least a first optical fiber to guide the light supplied to the optical filter, and a first lens to connect optically the first optical fiber with the optical filter, and

a second optical system which is oppositely provided to the first optical system through the optical filter, said second optical system including at least a second optical fiber to guide the light supplied from the optical filter, and a second lens to connect optically the optical filter with the second optical fiber, wherein

a lens surface of [any one of] an end [surfaces] surface of the first optical system [and] or the second optical system and a filter surface of an end surface of the optical filter, each

including an optical path thereof, are bonded by adhesive agent coated on a portion apart from the optical path, further wherein

at least one of said [at least any one of said] lens surface and said filter surface, being opposed each other, [has a] includes at least one groove portion in said portion apart from the optical path which enables the adhesive agent penetrated through the bonded surfaces to stay therein, said groove portion being formed in such a way that penetration of the adhesive agent into the optical path can be blocked.

2. (Amended) An optical filter module comprising:

an optical filter which selectively transmits, attenuates or reflects a light having a specific wavelength;

a first optical system which includes at least a first optical fiber to guide the light supplied to the optical filter, and a first lens to connect optically the first optical fiber with the optical filter, and

a second optical system which is oppositely provided to the first optical system through the optical filter, said second optical system including at least a second optical fiber to guide the light supplied from the optical filter, and a second lens to connect optically the optical filter with the second optical fiber, wherein

[any one of] an end [surfaces] surface of the first optical system [and] or the second optical system is comprised of a convex surface including a optical path and a flat portion protruding from a peripheral portion of the convex surface to an outside of the optical path

direction, said flat portion being formed so as to protrude outwardly from the convex surface of which portion is a most distant from said peripheral portion, further wherein

said [any one of] end [surfaces] surface and an end surface of the optical filter are bonded by adhesive agent coated on said flat portion.

3. (Amended) An optical demultiplexer comprising:

an optical filter which selectively transmits only a light having a specific wavelength and [reflect a] reflects light having other [wavelength] wavelengths;

a first optical system which includes a first optical fiber to guide the light supplied to the optical filter and a second optical fiber to guide the light supplied from the optical filter, and a first lens to connect optically the first and second optical fibers with the optical filter, and

a second optical system which is oppositely provided to the first optical system through the optical filter, said second optical system including at least a third optical fiber to guide the light supplied from the optical filter, and a second lens to connect optically the optical filter with the [second] third optical fiber, wherein

a lens surface of the first optical system and a filter surface of an end surface of the optical filter, each including an optical path thereof, are bonded by adhesive agent coated on a portion apart from the optical path, further wherein

at least one of said lens surface and said filter surface, being opposed each other, [has a] includes at least one groove portion in said portion apart from the optical path which enables the

adhesive agent penetrated through the bonded surfaces to stay therein, said groove portion being formed in such a way that penetration of the adhesive agent into the optical path can be blocked.

4. (Amended) An optical multiplexer comprising:

an optical filter which selectively transmits only a light having a specific wavelength and [reflect a] reflects light having other [wavelength] wavelengths;

a first optical system which includes at least a first optical fiber to guide the light supplied to the optical filter and a second optical fiber to guide the light supplied from the optical filter, and a first lens to connect optically the first and second optical fibers with the optical filter, and

a second optical system which is oppositely provided to the first optical system through the optical filter, said second optical system including at least a third optical fiber to guide the light supplied to the optical filter, and a second lens to connect optically the optical filter with the [second] third optical fiber, wherein

a lens surface of the first optical system and a filter surface of an end surface of the optical filter, each including an optical path thereof, are bonded by adhesive agent coated on a portion apart from the optical path, further wherein

at least one of said lens surface and said filter surface, being opposed each other, [has a] includes at least one groove portion in said portion apart from the optical path which enables the adhesive agent penetrated through the bonded surfaces to stay therein, said groove portion being formed in such a way that penetration of the adhesive agent into the optical path can be blocked.

5. (Amended) An optical demultiplexer comprising:

an optical filter which selectively transmits only a light having a specific wavelength and [reflect a] reflects light having other [wavelength] wavelengths;

a first optical system which includes at least a first optical fiber to guide the light supplied to the optical filter and a second optical fiber to guide the light supplied from the optical filter, and a first lens to connect optically the first and second optical fibers with the optical filter, and

a second optical system which is oppositely provided to the first optical system through the optical filter, said second optical system including at least a third optical fiber to guide the light supplied from the optical filter, and a second lens to connect optically the optical filter with the [second] third optical fiber, wherein

an end surface of the first optical system is comprised of a convex surface including a optical path and a flat portion protruding from a peripheral portion of the convex surface to an outside of the optical path direction, said flat portion being formed so as to protrude outwardly from the convex surface of which portion is a most distant from said peripheral portion, further wherein

said end surface and an end surface of the optical filter are bonded by adhesive agent coated on said flat portion.

6. (Amended) An optical multiplexer comprising:

an optical filter which selectively transmits only a light having a specific wavelength and [reflect a] reflects light having other [wavelength] wavelengths;

a first optical system which includes at least a first optical fiber to guide the light supplied to the optical filter and a second optical fiber to guide the light supplied from the optical filter, and a first lens to connect optically the first optical fiber with the optical filter, and

a second optical system which is oppositely provided to the first optical system through the optical filter, said second optical system including at least a third optical fiber to guide the light supplied to the optical filter, and a second lens to connect optically the optical filter with the [second] third optical fiber, wherein

an end surface of the first optical system is comprised of a convex surface including a optical path and a flat portion protruding from a peripheral portion of the convex surface to an outside of the optical path direction, said flat portion being formed so as to protrude outwardly from the convex surface of which portion is a most distant from said peripheral portion, further wherein

said end surface and an end surface of the optical filter are bonded by adhesive agent coated on said flat portion.

Claims 9-11 are added as new claims.